REFERENCE MANUAL

Modular Composition System

MULTIPLE COLUMN OPTION

(Addendum)

Part No. 214813-002

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FOREWORD

This manual describes the operating procedures for the **Modular Composition System...Multiple Column Option**. Due to the many forms of applications, the recommended procedures should be adhered to.

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Prepared By

Technical Product Support

200 Ballardvale Street

Wilmington, MA 01887

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Table of Contents

Introduction 1
Multiple Column Command Set 2
  Multiple Column On 2
  Return to Reference 2
  Advance from Reference 2
  MCO to Measure Depth 3
  Automatic Column Positioning 3
  Multiple Column Break 3
  Multiple Column Off 4
Multiple Column Operation 5
  MCO Applications Procedures 5
Cuts in Multiple Columns 7
Notes On Cut Usage 9
Command Interaction 12
Error Messages 13

Introduction

This manual describes the operation and application of the **Multiple Column Option (MCO)** as used on the **Modular Composition System**. Used in conjunction with other MCS composition features, MCO provides simplicity and flexibility in the preparation of columnar text.

It is assumed the operator has a working knowledge of the MCS composition and file management capabilities. This text provides instruction in the use of the command set associated with the MCO. Use this manual in conjunction with additional MCS reference manuals for a full understanding of system operating procedures.

The Multiple Column Option provides the operator with a means of establishing a vertical reference point from which a series of text columns will begin. At any point within a job, the operator can instruct the system to store the current job depth. The depth stored will be referenced when the system is instructed to return to that point to establish another column of text. The return to the reference point can be generated automatically by the system at a specified depth, or the operator can manually instruct the system to return to that point as required for the job.

An additional set of composition commands is associated with the Multiple Column Option. These commands are used in conjuction with the standard set of MCS commands for simple construction of columnar work. For the most part, the MCO commands do not effect, nor are they affected by, the functioning of the standard MCS commands. There are some commands, however, which do require special handling when used with the multiple column command set. The operation and application of these commands will be discussed in detail as they apply to multi-column work.

In order to produce a multiple column job, the typesetter must perform reverse leading. The MCO command which establishes the reference point in a multiple-column job also, when output, prepares the typesetter for a series of reverse leading commands. The typesetter is prepared for reverse leading by being instructed to pull an amount of paper/film from the photographic paper/film box. The amount pulled from the box is equal to the maximum forward or reverse leading of the typesetter being used.* (The maximum column depth is also equal to the maximum forward or reverse leading for the typesetter.) Pulling paper/film from the paper/film box prior to performing reverse leading allows freer media movement, thus ensuring the equality of column alignment when using MCO commands.

* **Maximum forward and reverse leading for the MCS 8200 and 8400 is 14" (84 picas); the maximum for the MCS 8600 is 24" (144 picas).**

MULTIPLE COLUMN OPTION COMMAND SET

There are six mnemonic commands associated with the Multiple Column Option. These commands include the means to establish a vertical reference point, return to that reference point (either automatically or by operator command), advance from the reference point, return to reference point at next subsequent tab, and terminate multi-column operation. Additionally, standard MCS commands are combined with multi-column parameters to produce completely paginated output.

As mentioned, MCO commands and most standard MCS commands do not affect the functioning of each other. However, there are some commands that are affected by multi-column work which will be discussed later in this section.

The MCO commands and their basic functions are listed below.

[MCO] Multiple Column On

This command, upon input, initiates the multiple column mode of operation. Initiation of the multiple column mode instructs the system to establish a vertical reference point. In other words, the MCS will "remember" the job depth at which the command is input. The job depth displayed on the second status line is then automatically reset to zero (D = 0:00). This allows the operator to keep track of column depth as a job is being input. As leading is incremented, the depth count will be updated to reflect the current column's depth. The zero depth (established by **[MCO]**) is the reference point to which the system will return when instructed to do so by the operator or by an automatic column break command (to be discussed later).

[MCR] Return to Reference

Upon input **[MCR]**, preceded by a line ending code, instructs the system to perform a reverse leading routine which will return the job to the zero depth point established by the **[MCO]** command. Regardless of how far from the reference point, **[MCR]** calculates and performs reverse leading as required to reset the depth count to zero (D = 0:00).

Note: At this point, the system has been instructed to return to the vertical reference point. A new left margin must now be set so that the next text column does not typeset over the first column. To make another column, the operator can offset text from the left margin by using tabs or indent commands.

[MCA####.#] Advance from Reference

To position text at a specific depth from the reference point, use the Advance from Reference command. This command, preceded by a line ending code, allows the operator to specify a distance from the reference point at which the next element of the job is to be positioned. The distance from the reference is specified in points and quarter points (####.#).

MCO To Measure Depth

The Multiple Column Option can also be used as a measure depth feature. To measure a column of text to a specific depth the operator can enter **[MCOdd.dd]**, (dd.dd equals depth in picas and points), at the beginning of a column and strike LIMIT, SCROLL UP in the Compose Mode. The cursor will stop after the last line that will fit in the desired depth. By placing the command **[MCR]** at the beginning of the line the cursor is resting on, the operator can again strike LIMIT, SCROLL UP, and continue to measure for another measured segment. When using this command it is necessary to manually call tabs to change the horizontal placement of columns. The default depth, when none is defined, is 84 picas.

[MCOdd.dd,tt,cc] Multiple Column On with Automatic Column Breaks

In addition to establishing a vertical reference, this command automatically breaks a galley into columns. This command requires that the operator specify a column depth, a tab number to reference for horizontal placement of the first column, and the total number of columns that should be made. Each time the given depth is reached, the system returns to the vertical reference and accesses the next sequential tab number. (Use of this command is dependent on the establishment of tab parameters for horizontal column placement and column widths.)

The first argument in the command (**dd.dd**) states how deep columns should be in picas and points. Maximum column depth is determined by the typesetter being used for output.*

The second argument (**tt**) is the number of the tab whose parameters determine where the left margin of the first column will be. The indent parameter in tab definitions define horizontal column placement across a page. Tab measures are used to determine column widths.

The third argument (**cc**) is the total number of columns desired. (A maximum of 20 columns can be specified.) After making the requested number of columns, the system will display a message (**MCP COL MAX**) and sound an audible tone to tell the operator that the multiple-column job parameters have been met.

[MCB] Multiple Column Break

This command is a combination of **[MCR]** and Call Tab. Upon input of this command, **[MCB]**, the system will return to the reference point (D=0:00) and advance to the next sequential tab.

*** The MCS 8200 and 8400 will allow a maximum column depth of 14" (84 picas). The MCS 8600 allows for a maximum column depth of 24" (144 picas). Except for the maximum column depth, the composition commands used to perform multi-column work are the same for each typesetter.**

[MCX] Multiple Column Off

When the proper number of columns have been completed, whether manually by the operator or automatically by the system, the **[MCX]** command must be used to take the system out of multiple column mode and out of the tabs designated. This command clears the reference that was set and restores the **current or overall job depth to this point** in the system (indicated by the depth display on the second parameter line).* The current job depth is the sum of three values: the depth which was in effect when the multiple column mode was initiated, plus the depth of the longest column, plus an additional two line spaces of leading.

When the **[MCB]** command is used, the current job depth equals the depth which was in effect when the multiple column mode was initiated, plus the depth defined in the **MCO** command, plus two additional line spaces of leading.

*** There are three depths of which the operator should be aware in multi-column work, the current column depth, the current galley depth and the current or overall job depth. The current column depth is equal to the distance from the top of the column to the cursor position (D=##.## on the status line and Column Depth in the Displayable Parameters). The galley depth is the sum of the columns thus far (Galley Depth in the Displayable Parameters). The current or overall job depth is the depth of the job after exiting multiple column mode.**

MCO APPLICATION PROCEDURES

Use of the MCO commands can best be explained by way of illustration. The following jobs will exemplify the use of multiple column commands and their interaction with additional MCS composition features.

Sample: Job A

Sample Job A is a simple multi-column job which requires operator interaction during text input in order to break text into columns.

The following procedure was used to create this job. Only the required MCO commands are listed; basic typesetting parameters are assumed.

1. Tab parameters are established to provide column indents and line measures.
2. The **[MCO]** command is input to initiate multiple column mode and establish a vertical reference point. Note that the depth count on the status line is reset to zero.
3. The tab which defines the indent and measure for the first column is called. Note that the first column does not have to start at the left margin; it starts at the indent specified by the tab called.
4. Text is input until the desired depth is reached. The operator keeps track of column depth by referencing the depth display on the second parameter line or in the displayable parameters. The column can be as long as the maximum allowable forward and reverse lead for the typesetter being used.
5. **[MCR]** is input to perform the reverse leading required to return to the vertical reference point.
6. Another tab is called to provide the indent and measure of the next column.
7. The text for this column is input. After reaching the desired depth, **[MCR]** returns to the vertical reference point and a third tab is called.
8. At the end of the third column, **[MCX]** is used to exit multiple column mode. The depth display is updated to the current **job** depth (depth in effect when multiple column mode initiated + depth of the longest column + two line spaces). **[MCX]** can be input either before or after the last line ending command if the maximum column depth has not been reached. Where it is placed, and the last line ending used (end line versus return), will affect the current job depth restored.

Example: Job A

[MCO] If you're a business executive traveling to Britain, heaven knows, no other airline offers you more. We have more flights to
END LINE/[MCR]/TAB

Britain than anyone else. And, we do fly you here to London from nine of your lovely cities. New York, Boston, Chicago,
END LINE/[MCR]/TAB

Detroit, Los Angeles, Miami, Philadelphia, Washington, D.C. and Anchorage. Why, from our own terminal at J.F.K. in New ...
END LINE/[MCX]

Note: The Slash is used only in these examples and is not used in actual operation.

Sample: Job B

The second exercise in multi-column work recreates Sample Job A using the multi-column command which incorporates automatic breaks, **[MCOdd.dd,tt,cc]**. Listed below are the instructions for using this command.

1. Tabs are established to provide column indents and measures. Certain requirements must be met when defining tabs for use with automatic column breaks. The **[MCOdd.dd,...]** command will always call tabs sequentially from whatever tab is called first. Therefore, sequential tab numbers must be used in tab definitions.

   The **[MCOdd.dd,...]** command **will not** check to verify that all potentially used tabs have been defined. In an effort to make the specified number of columns, **[MCOdd.dd,...] will** call sequential tabs. If the tabs have not been defined, they will default to a line length of zero. This will alert the operator of an error situation as characters cannot be entered into a zero line length.

   [MCO...] will check to verify that the first tab number plus the number of columns to be made does not exceed the maximum number of definable tabs (20).

2. The **[MCOdd.dd,tt,cc]** command is input with the appropriate arguments (column depth, tab number for the first column's indent, and number of columns required). Notice that the vertical reference point is set (D = 0:00).

3. Copy is input. Each time a leading command causes the specified column depth to be exceeded, the system performs an automatic **[MCR]** and Call Next Tab sequence to create the next column. (Notice the Tab Number and Depth count on the parameter line.) Text may be input until the parameters of the **[MCOdd.dd...]** command are met (cc columns each of dd.dd depth).

4. The line ending or leading command which causes the last column to exceed the specified depth signals the end of the MCO operation. The operator is informed of this with both a visible and audible message. No further operation can be done until the operator exits multiple column mode by use of the **[MCX]** command. The command is input immediately preceding the cursor position which marks the return or command which causes the depth to be exceeded. Again, **[MCX]** restores current **job** depth.

Example: Job B

[MCO7.00,01,03]
If you're a business executive traveling to Britain, heaven knows, no other airline offers you more. We have more flights to Britain than anyone else. And, we do fly you here to London from nine of your lovely cities. New York, Boston, Chicago, Detroit, Los Angeles, Miami, Philadelphia, Washington, D.C. and Anchorage. Why, from our own terminal at J.F.K. in New York (our own Customs and Immigration) we fly to Glasgow and have the only flights to Manchester as well. And from Washington D.C., English Airways offers you the Time Machine. The supersonic Concord that can fly the business executive in a very business-like hurry, to London in less than four hours. And from London to Bahrain in under five. Once you've landed on our ...
END LINE/[MCX]

Note: The Slash is used only in these examples and is not used in actual operation.

Sample: Job C - Cuts In Multiple Columns

Again, the same job is being used to further explain multi-column command usage. Sample Job C depicts the use of cut commands to reserve space for an illustration within multiple columns of text.

Cuts to be used in a multiple column job are defined as though the job were actually one long galley of text. That is, each cut is defined to begin at a certain depth from the first line of the first column. Cuts which fall in a column other than the first will start at a depth equal to the combined depth of any preceding columns plus the distance from the top of the column in which the cut falls. Instructions for completion of the sample job will help clarify cut usage in multi-column work.

1. The tab definitions are input for the column indents, widths, and number of columns.
2. The **[MCOdd.dd,tt,cc]** command is input with its appropriate parameters. For this example, the column depth equals 15 picas.
3. Cut definitions are defined next. The cut in column two, which is equal to the tab measure, is defined to start at a depth of **15***. This is equal to the depth of column one, 15 picas. At this point the Cut Right sequence should start.
4. Text is input and automatically placed in columns as in Sample Job B.
5. As required by the system prompts, **[MCX]** must be entered to exit the multiple column mode.

***A cut width defined as being equal to the current measure (a tab measure in this example) will leave blank space equal to the cut's depth specification. See the next page for more information on the use of cut commands with multi-column work.**

Example: Job C

[MCO15,1,3]/[CR1,15,10,12]

If you're a business executive traveling to Britain, heaven knows, no other airline offers you more. We have more flights to Britain than anyone else. And, we do fly you here to London from nine of your lovely cities. New York, Boston, Chicago, Detroit, Los Angeles, Miami, Philadelphia, Washington, D.C. and Anchorage. Why, from our own terminal at J.F.K. in New York (our own Customs and Immigration) we fly to Glasgow and have the only flights to Manchester as well. And from Washington D.C., English Airways offers you the Time Machine. The supersonic Concorde that can fly the business executive in a very business-like hurry, to London in less than four hours. And from London to Bahrain in under five. Once you've landed on our shores, we can fly you on to over 100 other European cities. Some even in our exclusive wide-bodied TriStars. Or shuttle you between London and Glasgow and Edinburgh ever so many times a day. Now that we'ver cleared all that up, tell your Transportation Department or Travel Agent that no one knows how to treat the Britain-bound executive better than English Airways. Bless you.

END LINE/[MCX]

Note: The Slash is used only in these examples and is not used in actual operation.

NOTES ON CUT USAGE WITH THE MCO

The following information relates to the use of cut commands in multi-column work. The information is presented for the operator's general information and understanding of cut and multi-column command interaction.

1. As shown in the preceding example, cut commands can be used to leave blank space by setting the cut width equal to the current line or tab measure. Use of this application usually requires special attention in jobs which require that text be aligned across columns. The proper alignment of text which follows blank space is dependent upon the leading value being used (whole versus whole and quarter point leading) and the depths at which cuts are defined to start and stop. An operator can ensure that a certain line falls at the correct depth by referencing the line's depth in the Displayable Parameters and comparing it to the depth of the text with which it should align.

   The Advance Lead command **[ALD]** or the Advance from Reference command **[MCA]** can also be used to leave white space in a column. Use of one of these commands requires operator interaction at the point in the job where the space is required.

   Deciding which method to use will depend on the job being input. The next exercise will present a discussion of the advantages of using one method over the other.

2. Cuts can be defined either before or after the **[MCO or MCOdd.dd,...]** command is entered. Whether columns are made manually or automatically, cuts are defined as though the job were a single galley.

3. A cut becomes active immediately **following** the line ending which causes the depth to **exceed** that at which the cut is defined to start. Therefore, if a cut should start at the top of a second or subsequent column, it should be defined to start at the maximum depth of the column which precedes it. For example, consider a job consisting of three thirty pica columns with cuts starting at the top of each column. The first cut is defined to start at a depth of zero, the second at a depth of thirty, and the third at a depth of sixty. The line ending which causes the column depth to be exceeded also calls the cut into effect at the top of the next column.

4. It should also be noted that cuts become active whenever the **job** depth is within the range of the cut specifications.

   For example, suppose a job has three thirty-pica columns. A cut is defined to take effect at a depth of 35 picas (five picas down from the top of column two) and it runs for 10 picas. At the end of the third column, **[MCX]** is entered to restore the current job depth. If this depth is less than 35 picas, or is between 35 and 45 picas, the cut will come into effect again.

   As a general procedure, cuts should be redefined with zero values after they have been used within multiple column work. For operator ease, it is suggested that a UDK be defined to contain **[MCX][CL1,0,0,0][CL2,0,0,0]** etc. (See main MCS Reference Manual for UDK definition instructions and applications.)

Sample Job D—More On Cuts With Multiple Columns

In the first two sample jobs, it was evident that there was more text to the job than would fit in the three columns that were made. Depending on the job, the operator might return to the left margin (carriage reset) and establish a new vertical reference to make more columns.

Sample Job D will discuss an applications procedure for finding the depth that will provide columns of equal length given a certain amount of text.

A Description of the Problem

The operator is given the layout and text for a three-column job. The layout shows three equal columns which include blank space where an illustration is to be inset. The operator's main concern is that the columns be aligned and of the same depth. Here is a procedure for finding the depth which will fit the text into three columns of equal length inclusive of the blank space needed for the illustration. **The effectiveness and simplicity of this procedure is job dependent**.

The procedure consists of text in galley form, input at the approximate point size and leading. After the text has been input, the operator then divides the depth indicated in the Displayable Parameters by the number of columns desired, allowing for the cut depth. The cut depth can be entered along with the text, using the Advance Lead function, **[ALD]**, to arrive at a more accurate galley depth. **(The [ALD] must be removed when the Cut Parameters are inserted to avoid additional space.)**

1. Parameters are entered for the measure, font, and an estimated point size and leading.
2. Text for the job is entered along with the blank space for the cut. Using **[ALD168]** allows for the 14 pica cut. The text can be entered in either the Edit Mode or the compose Mode. By using the Compose Mode, the operator can keep an account of the depth as the text is entered.
3. **The last line is completed with a return**. This last return is instrumental in determining the value which fits the text into three equal columns.
4. After the text and cut space has been entered, the operator can divide the depth indicated in the Display Parameters by the number of columns necessary, in this case three, and arrive at a close estimate of the text depth after the columns have been divided and assembled. **Some adjustments may have to be made at this point as the division will not always come out to an even value**.
5. The heading is input and tabs defined for column indents and widths.
6. The **[MCOdd.dd,tt,cc]** command is input, along with the Cut Right command, as determined from the calculations and the job layout. (Remove **[ALD168]** command).
7. With the system in Compose mode, test whether or not the text fits into the three columns. The estimate can be either too small or too large. If the **Maximum Column Exceeded** message appears before composing all the text, the estimate needs to be increased. If all the text composes, not sounding the **Maximum Column** message, then the estimate needs to be decreased. The text will be in three equal columns when the **Maximum Column Exceeded** message is sounded with the cursor positioned on the last return. **It may be necessary to adjust line space and other increments of leading to achieve an exact depth.**
9. **Change the last return to an End Line [EL]**. This is necessary to include the last text line within the column.
10. **[MCX]** is now required before any additional composition can take place.

Sample Job D—Cuts With Multiple Columns

Another method that can be used to arrive at an acceptable depth for the three columns indicated for Job D is outlined below. **Again, the effectiveness and simplicity of this procedure is job dependent.**

1. The heading is input and tabs defined for column indents and widths.
2. The **[MCOdd.dd,...]** command is input, estimating what the column depth might, or should be. Further along in the job, several more guesses and changes to leading and other composition variables might be required before a depth can be found which will provide equal columns.
3. Next, cuts are defined to take effect approximately where shown in the layout. The accuracy of their position is not as important as the fact that cut space be accounted for. (See Advanced Notes on Command Interaction.)
4. Text is now input. If in Compose mode, the operator might not reach the end of the copy before the system requests that multi-column mode be exited. Remember, only a guess has been made so far as to what the column depth might be. For this reason, it is suggested that the Edit mode be used. This will allow all the text required in the columns to be input before having to change the depth in the **[MCOdd.dd,...]** command.
5. **The last line is completed with a return**. This last return is instrumental in determining the value which fits the text into three equal columns.
6. Put the system into Compose mode to test whether or not the text fits into three columns of the estimated depth. The estimate can be either too small or too large. If the **Maximum Column Exceeded** message appears before composing all the text, the estimate needs to be increased. If all the text composes, not sounding the **Maximum Column** message, then the estimate needs to be decreased. The text will be in three equal columns when the **Maximum Column Exceeded** message is sounded with the cursor positioned on the last return. **Depending on the job, it may be necessary to adjust line space and other increments of leading to achieve an exact depth.**
7. **Change the last return to an End Line [EL]**. This is necessary to include the last text line within the column.
8. **[MCX]** is now required before any additional composition can take place.

Please Note: This is not a pagination nor a copyfitting program; the preceding are applications procedures, the effectiveness of which is job dependent.

Example:
Job D

It's Boom time for collectibles

[MCO32.6,01,3]/[CR1,41.8,14.2,12.9]

It is big business these days to be involved with antique collecting. Anyone who is attuned to the antiques and auction scene knows that records are continually being broken by rising prices. It's no longer unheard of for a great painting to bring more than a million dollars or for an important piece of furniture to sell in the six figures.

But it isn't just true antiques or fine arts that are making collecting big business. It's all those collectibles that people are clambering for at flea markets and auctions, garage sales and thrift shops that are contributing to the collecting boom so evident today.

There was a time when collectors were mainly affluent persons in search of exclusive antiques...or, as defined by the US Tariff Act of 1930, those objects of ornamental character or educational value which were fabricated prior to the year 1830.

But as of recent, a huge new class of collectors emerged...persons who never before had the time or money to collect. Since the days had long since passed when one could drive up to an old barn and drive off with a rare piece of 17th, 18th, or early 19th century furniture for just a few dollars, the new collectors, for the most part, have had to turn to later and much less costly items.

The fun and challenge of tracking down a particular item often became a more important part of collecting than acquiring an item for its worth. By the 1970s collecting was so widespread throughout the country that people began chasing nostalgia, much of it the nickel and dime items of the '30s, '40s, and '50s, some of them even handouts or freebies of their time.

Then, when inflation really began to put the pinch on people's pocketbooks, many persons found that they could make money by speculating in the market of collectibles.

"It is a phenomenon of our times that many unexpected and intrinsically worthless objects are accorded unbelievable values by collectors," noted Sally Patterson and Paullette Elinson, editors of a noted magazine on collectibles. Theirs was one of the first books dedicated to collectibles when it became published in 1977.

For example, anyone with a copy of the magazine which was first to carry the picture of a famous movie star on its cover could cash it in for many times its original price. If in mint condition, a first issue could command as much as $800 or as much as $600 if in good condition.

Tin banks from years gone by, which sold for less than $2 when made in the late '40s and early '50s can bring today anywhere from $200 to more than $700, depending on condition. Things that were given away, like political campaign buttons, can be turned into cold cash. One such button, which was handed out in 1900, was valued and sold for $825 when it was traded at a recent rare coin auction. The collectibles craze has grown to such proportions that it has caused new words to be coined, like collectaholics and collectivitis. and it has inspired a whole new array of books, including a recently published 16-volume encyclopedia on the subject.

And even more publications will appear on the scene which will deal with exclusive areas of the collectible business. These magazines will provide detailed information for antique dealers and specialty hunters.

[MCX]/CARRIAGE RESET
/[CR1,00,00,00]

Note: The Slash is used only as a separator in these examples and is not used in actual operation.
The Cut Runaround is allowing for a one column cut 14 picas deep with two points added to make the column align.

ADVANCED NOTES ON COMMAND INTERACTION

In two of the preceding jobs, a cut command was used to leave blank space within a column. The same effect can also be achieved by use of the Advance Lead **[ALD]** or the Advance from Reference command **[MCA]**. When to use one method over the other is job dependent and requires a knowledge of the way in which leading is handled with multiple column commands. When using the **[ALD]** command, plus point lead or plus line space, it should be noted that an error will be flagged if advancing the specified amount of lead exceeds the maximum column depth. (This information pertains to command interaction when using **[MCOdd.dd,...]** to break columns automatically.)

When, exactly, does the system break one column and begin a next? In most jobs, the column depth specified is not met exactly. This is mainly because the line space value does not divide evenly into the depth. The system continues in one column until it receives a leading command which makes it exceed the given depth. The command used or the amount by which the depth is exceeded does not matter; exceeding the depth of one column causes the next to come into effect.

The amount by which a column is exceeded is dropped by the system. For example, a system-generated return may cause a column depth to be exceeded by three points. These three points are dropped as opposed to being applied to the depth count of the next column. The commands to which this rule applies are system returns, operator-inserted returns and tab returns.

A cut depth, however, can be split over two columns provided it is not a full column width, because it is figured as though in a single galley. Once in effect, a cut stays in effect until its defined depth has been achieved. This means that a cut which might start at the bottom of one column can continue in effect at the top of the next. While not a standard procedure, this capability gives the effect of two cuts (a bottom and top cut) from one definition. This could be of benefit depending on where cuts fall and how many are required in a job.

When a cut command does fall near the end of a column, it does not carry part of the blank space over to the next column if the cut width is equal to the column width. The blank space for the cut will continue on past the column depth specified and output one line of text. It will then return to the reference point and continue.

In Sample Job D, alternate method, a cut command was used to reserve blank space in the second column. As noted at the beginning of this section, the same effect can be achieved with either the Advance Lead or the Advance from Reference command. However, in this job, a trial and error method was used to determine what the column depth should be. In finding the column depth, the accuracy of cut positioning was not as critical as the fact that all the illustration space be accounted for within the columns. For this reason, a cut command was used to reserve blank space instead of Advance Lead or Advance from Reference. While composing with different depth estimates, if the cut command fell at the bottom of a column, the correct amount of space would still be accounted for in figuring the column depth; if either of the leading commands were used, an error could occur if the leading exceeded the maximum column depth.

The following error messages may occur during use of the **Multiple Column Option** commands.

When using **Multiple Column On with Automatic Column Breaks [MCOdd.dd,tt,cc]**:

MESSAGE	ERROR
Bad Input	MCO Not Available
MCO? Error	Already On
MCO Window	Depth Too Large
MCP Col Max	Tabs Out Of Range
VJO Mul Col	Vertical Just On

When using **Return to Reference [MCR]** or **Advance from Reference [MCA]**:

MESSAGE	ERROR
MCO? Error	MCO Not On
MCO Window	Below Max Col Depth
VJO Mul Col	Outside Active VJ Window

When using **Multiple Column Break [MCB]**:

MESSAGE	ERROR
MCO? Error	MCO Not On
MCP Col Max	In Last Column
VJO Mul Col	In an Active VJ Window

When using **Multiple Column Off [MCX]**:

MESSAGE	ERROR
MCO? Error	MCO Not On
Fld Error	Leading Exceeds Maximum
VJO Mul Col	In an Active VJ Window

The following MCS commands can, in some cases, be affected by the use of the **Multiple Column Option**.

Advance Leading
Reverse Leading
Plus Line Space
Minus Line Space
Plus Point Lead
Minus Point Lead
Cut Run Arounds
Vertical Justification*

* **For further information on Vertical Justification refer to the MCS File Management and Typesetting Manual.**

200 Ballardvale Street
Wilmington, MA 01887